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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/552,186 | 10/06/2005 | Chandler H. McIver | 4905-A-13 | 6219 |
| 33136 | 7590 | 07/05/2006 | EXAMINER | |
| WILLIAM C. CAHILL 155 PARK ONE 2141 E. HIGHLAND AVENUE PHOENIX, AZ 85016 | | | | NGO, HUNG V |
| | | ART UNIT | | PAPER NUMBER |
| | | 2831 | | |

DATE MAILED: 07/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|-------------------------|---------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/552,186 | MCIVER, CHANDLER H. |
| | Examiner Hung V. Ngo | Art Unit 2831 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on ____.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) Claim(s) ____ is/are allowed.
- 6) Claim(s) 1-9 is/are rejected.
- 7) Claim(s) ____ is/are objected to.
- 8) Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on ____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. ____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10-06-05
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date: ____
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: ____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4 are rejected under 35 U.S.C. 102(e) as being anticipated by Lo et al (US 6,507,120).

Re claim 1, Lo et al disclose a small outline leadless package comprising:

- (a) a molding compound (224) encapsulating discrete semiconductor devices (200) comprising one of a solder contact bump, small outline integrated circuit and a solder contact bump small outline transistor to form a package having a top, bottom and four side surfaces (Fig 2);
- (b) a pair of electrical contacts (202) each contacting a solder contact bump and extending to and flush one of said surfaces;
- (c) each of said electrical contacts providing an exposed contact surface coplanar with said one of said surfaces and terminating at a junction between said one of said surfaces and another of said surfaces (Fig 2); and
- (d) the termination of said contacts occurring only at oppositely disposed package surfaces (Fig 2).

Re claim 2, wherein said one of said surfaces is a top, bottom surface and other surface is a side surface (Fig 2)

Re claim 3, wherein each of said electrical contacts include longitudinally extending notches (Fig 2).

Re claim 4 wherein the exposed contact surface of said electrical contacts is shaped to identify the electrical function of the encapsulated device (Fig 2).

Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Sunada (US 5,625,223)

Re claim 1, Sunada discloses a small outline leadless package comprising:

(a) a molding compound (2') encapsulating discrete semiconductor devices (4') comprising one of a solder contact bump, small outline integrated circuit and a solder contact bump small outline transistor to form a package having a top, bottom and four side surfaces (Fig 5);

(b) a pair of electrical contacts (3'a, 3'b) each contacting a solder contact bump and extending to and flush one of said surfaces;

(c) each of said electrical contacts providing an exposed contact surface coplanar with said one of said surfaces and terminating at a junction between said one of said surfaces and another of said surfaces (Fig 5); and

(d) the termination of said contacts occurring only at oppositely disposed package surfaces (Fig 5).

Re claim 2, wherein said one of said surfaces is a top, bottom surface and other surface is a side surface (Fig 5)

Re claim 3, wherein each of said electrical contacts include longitudinally extending notches (Fig 5).

Re claim 4 wherein the exposed contact surface of said electrical contacts is shaped to identify the electrical function of the encapsulated device (Fig 5).

Re claim 5, wherein one of said electrical contacts is S-shaped for contacting solder bumps on a surface of said discrete semiconductor device and wherein a second electrical contact is planar and contacts solder contact bumps on an opposite side of said discrete semiconductor device (Fig 5).

Claims 6, 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Song et al (US 5,770,888)

Re claim 6, Song et al disclose a small outline leadless package comprising

- (a) a molding compound (26) encapsulating discrete semiconductor devices comprising one of a solder contact bump small outline integrated circuit solder contact bump small outline transistor to form a package having top, bottom and four side surfaces;
- (b) a pair of S-shaped electrically contacts (22b) each contacting a solder contact bump (25) and extending to and flush with one of said surfaces, said electrically contacts contacting solder bumps on a top surface of the encapsulated device and extending to a bottom surface of said package;
- (c) each of said electrical contacts providing an exposed contact surface coplanar with one of said package surfaces and terminating at a junction between said one of said package surfaces and another of said package surfaces (Fig 4); and
- (d) the termination of said contacts occurring only at oppositely disposed package surfaces (Fig 4).

Re claim 7, wherein said one of said surfaces is a bottom package surface and another of said surfaces is a side package surface (Fig 4).

Claim 8, 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Cavasin (US 5,302,849)

Re claim 8, cavasin disclose a small outline leadless package comprising:

- (a) a molding compound (32) encapsulated discrete semiconductor device (12) comprising one of a solder contact bump small outline integrated circuit and a solder contact bump small outline transistor to form a package having a top, bottom and four side surfaces;
- (b) a pair of L-shaped electrical contacts (18) each contacting a solder contact bump (17) and extending to and flush with two of said package surfaces;
- (c) said electrical contact providing an exposed contact surface coplanar with each of said two package surfaces and terminating at a junction between said two package surfaces (front page); and
- (d) the termination of said contacts occurring only at oppositely disposed package surfaces (front page).

Re claim 9, wherein said discrete semiconductor device is mounted between two vertically extending legs of opposing L-shaped electrical conductors (Front page)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung V. Ngo whose telephone number is (571) 272-1979. The examiner can normally be reached on Monday to Thursday 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean A. Reichard can be reached on (571) 272-2800 EXT 31. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HVN
06-26-06

Hung V. Ngo

HUNG V. NGO
PRIMARY EXAMINER